

Listing of All Claims

1.-19. (canceled by Preliminary Amendment)

20. (Original) A cellular telephone, comprising:

an audio microphone for converting voice signals into electrical voice signals;
an analog to digital converter for converting the electrical voice signals into digital voice samples;

a voice coder for converting the digital voice samples into encoded digital voice signals;

a transceiver that transmits the encoded digital voice signals over a digital voice channel of a wireless communications network; and

an inband signaling modem that converts a digital bit stream into synthesized tones and outputs the synthesized tones to the voice coder, the voice coder encoding the synthesized tone in the same manner as the electrical voice signals before being transmitted over the digital voice channel.

21. (Original) A cellular telephone according to claim 20 including a digital to analog converter coupled between the inband signaling modem and the analog to digital converter.

22. (Original) A cellular telephone according to claim 21 wherein the inband signaling modem and the digital to analog converter are located in a device detachably coupled to the cellular telephone.

23. (Currently amended) A cellular telephone ~~according to claim 20~~ comprising:
an audio microphone for converting voice signals into electrical voice signals;
an analog to digital converter for converting the electrical voice signals into digital voice samples;

a voice coder for converting the digital voice samples into encoded digital voice signals;

a transceiver that transmits the encoded digital voice signals over a digital voice channel of a wireless communications network;

an inband signaling modem that converts a digital bit stream into synthesized tones and outputs the synthesized tones to the voice coder, the voice coder encoding the synthesized tone in the same manner as the electrical voice signals before being transmitted over the digital voice channel; and

including a packet formatter that converts the digital bit stream into inband signaling packets that include sacrifice bits that can be corrupted without losing any of the content of

the digital bit stream.

24. (Original) A cellular telephone according to claim 23 wherein the sacrifice bits are located at the beginning and at the end of the inband signaling packets.

25. (Original) A cellular telephone according to claim 23 wherein the packet formatter attaches a sequence of preconditioning bits to the inband signaling packets that enable the voice coder to adapt to the frequencies, bit rate and sequence of synthesized tones that represent the digital bit stream.

26. (Original) A cellular telephone according to claim 25 wherein the preconditioning bits are a random sequence of "1" and "0" binary bits.

27. (Original) A cellular telephone according to claim 20 including a decoder (16) coupled to the voice coder for detecting and decoding synthesized tones received over the digital voice channel.

28. (Currently amended) A cellular telephone ~~according to claim 27~~ comprising:
an audio microphone for converting voice signals into electrical voice signals;
an analog to digital converter for converting the electrical voice signals into digital
voice samples;

a voice coder for converting the digital voice samples into encoded digital voice
signals;

a transceiver that transmits the encoded digital voice signals over a digital voice
channel of a wireless communications network; and

an inband signaling modem that converts a digital bit stream into synthesized tones
and outputs the synthesized tones to the voice coder, the voice coder encoding the
synthesized tone in the same manner as the electrical voice signals before being transmitted
over the digital voice channel;

including a decoder coupled to the voice coder for detecting and decoding synthesized
tones received over the digital voice channel; and wherein the decoder includes:

a first inband filter for filtering signals outside of a synthesized tone frequency band;
a second out of band filter for filtering signals inside the synthesized tone frequency
band; and

a comparator that compares the signals outside the synthesized tone frequency band
with the signals inside the synthesized audio tone frequency band and identifies signals as
synthesized tones when the compared value is greater than a selected value.

29. (Original) A cellular telephone according to claim 28 wherein the decoder includes:

an active state that correlates detected synthesized tones with a first transform representing a binary "1" value and a second transform representing a binary "0" value;

a clock recovery state that synchronizes the decoder to the synthesized tones by first shifting samples of the synthesized tones until a maximum power ratio is detected in a digital synchronization pattern in the simulated voice data; and

a demodulation state where synthesized audio tones are demodulated back into digital data.

30. (Original) A cellular telephone according to claim 20 wherein the synthesized tones are generated at a first audible frequency to represent binary "1" values and at a second audible frequency to represent binary "0" values, the first and second frequencies being about 100 Hertz apart, each extending for a duration of about 10 milliseconds and generated as one continuous signal.